

WHAT IS CLAIMED IS

1. A semiconductor device comprising:

a first insulating film formed over a semiconductor substrate;

a first interconnection structure buried in the first insulating film, and having a via portion buried in a groove-shaped via hole and an interconnection portion formed on the via portion and having an eave-shaped portion horizontally extended, a length of the eave-shaped portion of the interconnection portion being 3 times or more a height of the via portion;

a second insulating film formed on the first insulating film with the first interconnection structure buried in, and formed of an insulating material whose thermal expansion coefficient is below 1/5 of a thermal expansion coefficient of an insulating material forming the first insulating film; and

a second interconnection structure buried in the second insulating film and connected to the first interconnection structure.

2. A semiconductor device comprising:

a first insulating film formed over a semiconductor substrate and formed mainly of a film of polyallyl ether resin;

a first interconnection structure buried in the first insulating film, and having a via portion buried in a groove-shaped via hole and an interconnection portion formed

on the via portion and having an eave-shaped portion horizontally extended;

a second insulating film formed on the first insulating film with the first interconnection structure buried in, and formed mainly of a film of organosilicate glass; and

a second interconnection structure buried in the second insulating film, and connected to the first interconnection structure.

3. A semiconductor device according to claim 2, wherein

a length of the eave-shaped portion of the interconnection portion of the first interconnection structure is 3 times or more a height of the via portion.

4. A semiconductor device according to claim 1, wherein

the via portion and the interconnection portion of the first interconnection structure are formed of the same conducting layer.

5. A semiconductor device according to claim 2, wherein

the via portion and the interconnection portion of the first interconnection structure are formed of the same conducting layer.

6. A semiconductor device according to claim 1, wherein

the first interconnection structure and the second

interconnection structure form at least a part of a guard ring.

7. A semiconductor device according to claim 2, wherein

the first interconnection structure and the second interconnection structure form at least a part of a guard ring.

8. A semiconductor device according to claim 1, wherein

the first interconnection structure and the second interconnection structure are formed of a conducting material mainly formed of copper.

9. A semiconductor device according to claim 2, wherein

the first interconnection structure and the second interconnection structure are formed of a conducting material mainly formed of copper.

10. A semiconductor device according to claim 1, wherein

the first insulating film is a layer structure of a film of polyallyl ether resin, and a film which functions to prevent the diffusion of copper and/or functions as an etching stopper for the film of polyallyl ether resin.

11. A semiconductor device according to claim 1, wherein

the second insulating film is a layer structure of a film of organosilicate glass, and a film which functions to prevent the diffusion of copper and/or functions as an etching

stopper for the film of organosilicate glass.

12. A semiconductor device comprising:

a first insulating film formed over a semiconductor substrate;

a first interconnection structure buried in at least a surface side of the first insulating film;

a second insulating film formed on the first insulating film with the first interconnection structure buried in, and formed of an insulating material whose thermal expansion coefficient is 5 or more times a thermal expansion coefficient of an insulating film forming the first insulating film; and

a second interconnection structure buried in the second insulating film, and having a via portion buried in a groove-shaped via hole and connected to the first interconnection structure and an interconnection portion formed on the via portion and having an eave-shaped portion horizontally extended, a length of the eave-shaped portion of the interconnection portion of the second interconnection structure being 3 times or more a height of the via portion.

13. A semiconductor device comprising:

a first insulating film formed over a semiconductor substrate, and formed mainly of a film of organosilicate glass;

a first interconnection structure buried in at least a surface side of the first insulating film;

a second insulating film formed on the first insulating film with the first interconnection structure buried in, and

formed mainly of a film of polyallyl ether resin; and

a second interconnection structure buried in the second insulating film, and having a via portion buried in a groove-shaped via hole and connected to the first interconnection structure and an interconnection portion formed on the via portion and having an eave-shaped portion horizontally extended.

14. A semiconductor device according to claim 2, wherein

the film of polyallyl ether resin is SiLK film or FLARE film.

15. A semiconductor device according to claim 13, wherein

the film of polyallyl ether resin is SiLK film or FLARE film.

16. A semiconductor device according to claim 2, wherein

the film of organosilicate glass is SiOC film or SiO₂ film.

17. A semiconductor device according to claim 13, wherein

the film of organosilicate glass is SiOC film or SiO₂ film.

18. A semiconductor device according to claim 10, wherein

the film which functions to prevent the diffusion of

copper and/or functions as an etching stopper for the film of polyallyl ether resin is SiC film or SiN film.

19. A semiconductor device according to claim 11, wherein

the film which functions to prevent the diffusion of copper and/or functions as an etching stopper for the film of organosilicate glass is SiC film or SiN film.